SITE PLAN REVIEW PROCEDURES & APPLICATION "2008"

"Working toward an attractive & pedestrian friendly community"

What projects require site plan approval?

The Pre-Application Conference

Minimum Submission Requirements

Minimum Contents for a Site Plan

Site Plan Review Process

Minimum Specifications for Plan Layout

Surveying/Plat Checklist

Guidelines for a Traffic Impact Study

Sample Surety

- **What projects require site plan approval?**

A site plan is required for any construction, expansion, enlargement, extension, reconstruction, or alteration of a building, structure, use, or change of use, including the reconfiguration or re-striping of a parking lot. One and two family dwelling projects are exempt from this review process.

Site Plan review is intended to provide facts and information to the builder, developer, owner, or owner's representative & the City regarding a proposed project. The review process is a primary tool in identifying development compliance with the policies, regulations & standards and attaining final by the City of Bedford.

- **The Pre-application Conference:**

Builders, developers, owners, representatives and plan preparers unfamiliar with the applicable requirements and approval procedures of the City are strongly encouraged to meet with the Building Official prior to submission of the site plan application. The Official may require a pre-application conference with the applicant and appropriate plan review team members for large or complex projects.

- **Minimum Submission Requirements:**

The following information shall be provided by the applicant at the time of application:

1. Applicants are advised to familiarize themselves with the application prior to plan preparation. Ten copies of the following application, the site plans (each page sealed and indicating the last revision date) and three copies of the sealed pre & post drainage and storm water management calculations.

   a.) Site plans shall be prepared and certified by a qualified professional licensed in the Commonwealth of Virginia. Qualified professionals include Registered Architects, Professional Engineers, Certified Land Surveyors and Certified Landscape Architects.

   b.) Site plans shall be prepared on minimum 11"x 17" sheets and a maximum 30"x 42" sheets. The site plan is required to be prepared to the scale of 1" = 30'.
   (Upon written request, the Building Official may approve a variance to sheet size and scale requirements when such variances or alterations are warranted)

   c.) Site Plans shall contain all the information required by the minimum contents listed in the following section.

SITE DEVELOPMENT PLAN REVIEW APPLICATION

Project Description/Name: _____

Physical Street Address: _____

Tax Parcel ID: _____ **Zoning District:** _____

Proposed Use(s): _____

_____

Owner of Record: _____

Address _____ City _____ State ____ Zip _____

Daytime Ph # (_____)_____ Fax # (_____)_____

Mobile Phone (_____)_____ E-mail _____

***Applicant:** _____

Address _____ City _____ State ____ Zip _____

Daytime Ph # (_____)_____ Fax # (_____)_____

Mobile Phone (_____)_____ E-mail _____

Residential	**Non–Residential** (Commercial, Industrial, Public, Etc.)
Type of Unit(s): _____	Type of Unit(s): _____
# of building(s): _____	# of building(s): _____
Sq. ft. of building(s) _____	Sq. ft. of building(s) _____
Development Size: _____ acres.	Development Size: _____ acres.
Land Disturbing Activity: _____ acres.	Land Disturbing Activity: _____ acres.

- **Application Part 1 of 2**

Owner / Applicant Must Read and Sign

This site plan as submitted contains all of the information required by City of Bedford Land Development Regulations, policies and standards. I understand that plans, which lack the information required, shall be deemed incomplete and non-approvable by the Building Official.

I hereby authorize the City of Bedford, Virginia to review these drawings, visit the site, contact the appropriate design professional(s) in relation to questions generated as a result of the review.

_____ _____

Print Name Signature of Owner/Owners Agent

(_____)_____ (_____)_____ _____

Phone # Mbl. Phone # Date

- **End of Application Part 2 of 2**

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- **Minimum Contents for Site Plan:**

A. Title of the project; names of the engineer, architect, landscape architect or surveyor, if any; names of the developer and property owner;

B. The north point, scale, date and vicinity map & applicable legends;

C. The boundaries of the property involved, all existing property lines, setback lines, buildings, watercourses, waterways or lakes and other existing physical features in or adjoining the project, including flood hazard areas as identified by the official City flood insurance maps. Physical features such as watercourses, waterways or lakes on adjoining properties need only be shown in approximate scale and proportion. One page of the plans shall contain a copy of an approved plat and indicated the recordation data, unless otherwise approved;

D. The location, dimensions and character of construction of existing and proposed streets, alleys, sidewalks, curbs and gutters and all curb cuts;

E. The location and size of existing and proposed sanitary sewers; water, fiber optic telephone or other communication cables & equipment, electric and other utility lines; culverts and other underground or overhead structures in or affecting the project, including existing and proposed facilities and easements for the facilities. Where utilities are not existing on site and will be required for development, they shall be located and shown with sizes and distances on the applicable utility page;

F. All off-street parking, travel lanes, driveways, loading spaces, ADA compliance structures, walkways and outdoor lighting systems (use of the City candlestick lighting is encouraged including luminary size), indication of the type of surfacing, size, angle of stalls, width of aisles and a specific schedule showing the number of parking spaces provided;
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G. Existing and proposed storm water management facilities indicating location, size, type and grade of ditches, catch basins and pipes, including on-site water retention and related requirements and a statement that they will be maintained by the owner;

H. Landscape, screening, etc. plans. Screen fencing is discouraged;

I. Information necessary to demonstrate that all construction or development will be pedestrian friendly and fully comply with applicable federal, state and local requirements for accessibility to the handicapped. City approved thermoplastic crosswalks are encouraged. Proposed pedestrian friendly sites are recommended;

J. A temporary traffic control plan and the site distance from all existing and proposed street entrances;

K. Any additional information as deemed necessary by the City to provide sufficient information for staff review including soil information, estimated project traffic generation and related project impacts on public facilities and resources.

• Site Plan Review Process:

The application and site plan will be reviewed for completeness at the time of submittal. The Building Official will notify the applicant of any deficiencies if the submittal is determined to be incomplete. Consequently, the City will take no further steps to process the application until the applicant remedies the deficiencies and files a complete application and site plan.

Applications may be submitted for review at any time during normal business hours to the Building Official Office (Building Official) or Administrative Assistant. The site plan review process will follow the following steps:

1. Review site plan application. A pre-application conference is strongly encouraged with the Site Plan Review Building Official;

2. Submit site plans (ten complete sets) and E&S, SWM calculations (three sets);

3. Applicants will be notified if application is incomplete or further information is needed. Once plans are determined to be complete the will be reviewed;

4. Site review comments are compiled by the Building Official and sent to the applicant or plan preparer;

5. If applicant has questions, the applicant should call the Building Official to discuss or schedule a meeting;

6. Applicant makes revisions and submits revised site plans (10 sets) and E&S, SWM calculations (three sets) to the Building Official;

7. The Site Plan is redistributed;

8. If all required corrections have been made, the site plan is approved and the applicant is notified. The estimated time for the approval process is from three to eight weeks from receipt of the complete application. If all corrections have not been remedied, the applicant will be notified of the remaining deficiencies. Please repeat steps 2-6. A “surety” approved by the City is generally required. A surety in the attached example format is recommended;

9. Applications for building and land disturbing permits may be submitted with approved site plan;

10. It should be noted that *"A separate utility (water & electric) meter and the associated fees will be required payable to the City for each individual premise, tenant space and/or unit.";*

11. The following checklists shall be used in the determination of the adequacy of the site plan:

    a. The Erosion and Sediment Control Checklist;
    b. Storm Water Design and Plan Review Checklist;
    c. Specifications for Plan and Layout;
    d. Surveying/Plat Requirements;
    e. Guidelines for Traffic Impact Study

- **Minimum Specifications for Plan Layout:**

I COVER SHEET

A. Title Block

1. Project Name (include Phase, and indicate Concept, Preliminary, Revision No., Final, As Built, etc.;
2. Erosion and Sediment Control Plan or Site Plan);
3. Engineer and Name, Firm Name, Mailing Address, Phone #, Mbl. #, Email Address, Fax #, Seal # & Seal;
4. Prepared/Drawn by: _____ and date _____;
5. Checked by: _____ and date _____;
6. Developer and Firm Name, Mailing Address, Phone #, Mbl. #, Email Address, Fax #, Seal # & Seal;
7. Date and revision dates;
8. Sheet Description (i.e. Cover Sheet, General Notes, Plan and Profile, Cross Sections, Standards Sheet, and Erosion and Sediment Control Sheet, etc.);
9. Vertical and Horizontal Scale (as applicable);
10. Sheet No. _____ of _____.

B. Location/Vicinity Map

1. Minimum size 5"x 5" map with border;

B. Include a minimum of 2 arterial roads or 2 waterways or 1 arterial road and 1 waterway, etc.;

3. Limits of construction shaded;
4. Property Boundary

C. Index

1. Sheet No.;
2. Sheet description as per "Title Block".

D. Project Title

1. 3/4 " Height;
2. Block or Bold;

3. All Capitals

E. Original owner(s) signature executing statement indicating all associated construction/development cost, fees, etc. are the responsibility of the owner, that plans, specifications and drawings have been reviewed and approved by the owner. Original P.E., Architect and/or L.S. stamp and signatures. The P.E., Architect and/or L.S. stamp(s) and signature(s) shall be placed on each sheet of the plans drawings.

F. Plans in CAD format

G. Abridged Summary of Quantities

1. Length of street improvements;
2. Length and size of sanitary sewer mains;
3. Length and size of water mains;
4. Quantity of fire hydrants;
5. Number and size of electric, water & sewer utility connections (minimum of 1 per premise, tenant space and unit).

II GENERAL NOTES

A. Summary of Quantities

1. List bid items, numbered as in contract;
2. Include Erosion and Sediment Control items and structures (break down: i.e. Silt Fence- LF, Silt Trap- Each, etc.);
3. Include plan quantities with units.

B. Typical Cross Section

1. Scale view of a representative cross section, showing ROW, Sidewalk, Curb and Gutter, Pavement, Aggregate, Mains, etc.;
2. Dimensions of all above construction (except when a Detail applies);
3. Minimums and maximums of variable dimensions;
4. Show slopes of road, sidewalk, driveways and parkways (include minimums and maximums);
5. Stations where a Typical Cross Section is applicable when there are 2 or more Typical Cross Sections.

C. Title Block - same as in Section **I**-A.

D. Legend

1. Representative section of line types with explanation of what line types denote. (See attachment #I);
2. Symbols for monuments, new and existing;
3. Symbols for structures, new and existing;
4. Symbols for Erosion and Sediment Control items as per Virginia Erosion and

Sediment Control Handbook.

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III PLAN AND PROFILE SHEET

A. Orientation of Plan View should have North to top or left of sheet.

B. North Arrow

C. Bench Mark Table

1. List all bench marks in a block.
    a. Bench Mark No.;
    b. Description;
    c. Station;
    d. Elevation
2. Show Bench Mark on Plan View.

D. Curve Data

1. Show all vertical and horizontal curves in a Curve Data Block.;
2. Show Stations of P.C., P.I. and P.T.;
3. Show all other needed data, i.e. R, delta, LC, e, etc.

E. Plan View

1. Show R.O.W. and Property lines and easements proposed and existing;
2. Show existing road, structures, utilities, topography, etc.
    a. Use dashed thin lines;
    b. List sizes and types of pipe for existing mains.
3. Show proposed construction
    a. Use solid bold lines (use distinct line types for utilities);
    b. List sizes and types for proposed mains and services;
    c. Give station and offset to all structures and P.C.'s and P.T.'s on curb;
    d. List total lengths for all runs of pipe and curb;
    e. Show all dimensions for R.O.W. and back of curb from centerline;
    f. Show bench marks graphically;
    g. List dimensions for widths of new driveways (at R.O.W.) and sidewalks;
    h. Box out any proposed construction text.;
    i. Illustrate grading on all proposed construction;
    j. Indicate water, sewer and electrical demands by quantity, sizes, amps, voltages, etc., and the proposed location of each.

F. Profile

1. Provide a base grid.
    a. 5 foot elevation lines should be solid bold lines;

b. 2 foot elevation lines should be thin solid or dotted lines;
c. 5 foot elevation lines should have elevation labeled;
d. Stations should be solid bold lines.

2. Show all existing electrical, communication, utility, water, sanitary and storm sewer mains with structures and centerline. Also indicate ownership.
a. Use dashed thin lines;
b. List invert elevation of structures. (Crossing conflicts should have minimum separation defined;
c. List size and type of pipe;
d. Show tops and bottoms of pipe.

3. Show proposed centerline of electrical, communication, utility, water, sanitary and storm mains with structures. A separate utility (water & electric) meter and the associated fees will be required payable to the City for each individual premise, tenant space and/or unit. Also indicate ownership of each and that the maintenance of all storm water structures, pipes, detention ponds, etc., shall be maintained by the owner.
a. Use solid bold lines (except centerline, which should be bold centerline line type;
b. List elevations of pipe inverts and tops of manholes;
c. List sizes and types of pipe;
d. List rates on storm and sanitary legs of pipe;
e. Show stations of P.C., P.I. and P.T. of vertical curves;
f. Show tops and bottoms of pipes;
g. Indicate water laterals, extensions and taps shall be wet and borings will be required under existing streets, unless otherwise approved, and the associated cost are the responsibility of the owner;
h. Indicate sanitary sewer laterals, extensions and tap/connection borings will be required under existing streets, unless otherwise approved, and the associated cost are the responsibility of the owner;
i. Indicate storm sewer laterals, extensions and tap/connection borings will be required under existing streets; unless otherwise approved, and the associated cost are the responsibility of the owner;
j. Indicate that electrical, communication, utility laterals, extensions and tap/connections borings will be required under existing streets, unless otherwise approved, and the associated cost are the responsibility of the owner.

4. Title Block - same as in Section **I**-A.

IV CROSS SECTION SHEET

A. Grid

1. Provide scaled 5'x5' grid, dot line type;
2. Label station and cross street, driveway or alley if applicable;
3. Label elevation lines of grid;
4. Show and label R.O.W.;
5. List Cut and Fill for each cross section;
6. List proposed top of curb or centerline elevation;

B. Existing Cross Section

1. Show cross section of R.O.W. at stations and beyond R.O.W. for cross streets, driveways and alleys;
2. Use thin solid line type.

C. Proposed Cross Section

1. Show proposed cross section for limits of construction;
2. Label proposed rates on driveway entrances;
3. Show full cross section views of road, sidewalk, driveways and curb;
4. Use bold solid line type.

D. Title Block - as per section **I**-A.

V EROSION AND SEDIMENT CONTROL SHEET

A. Narrative

1. Project Description: Briefly describes the nature and purpose of the land disturbing activity and the area (in acres) to be used.
2. Existing Site Conditions: A description of the existing topography, vegetation and drainage.
3. Adjacent Areas: A description of neighboring areas such as streams, lakes, residential areas, roads, etc.., which might be affected by the land disturbance.
4. Off-site Areas: Describe any off-site land disturbing activities that will occur (including borrow sites, waste or surplus areas, etc..).
5. Soils: A brief description of the soils on the site giving such information as soil name, mapping unit, erodibility, permeability, depth, texture and soil structure.
6. Critical Areas: A description of areas on the site which have potentially serious erosion problems (e.g., steep slopes, wet weather/underground springs, etc.).
7. Erosion and Sediment Control Measures: A description of the methods which will be used to control erosion and sediment on the site.
8. Permanent Stabilization: A brief description, including specifications, of how the site will be stabilized after construction is completed.
9. Stormwater Runoff Considerations: Will the development site cause an increase in peak runoff rates? Will the increase in runoff cause flooding or channel degradation downstream? Describe the strategy to control storm water runoff.
10. Calculations: Detailed calculations for the design of temporary sediment basins, permanent storm water detention basins, diversions, channels, etc.. Include calculations for both predevelopment and post development runoff.

B. Site Plan

1. Vicinity Map: A small map locating the site in relation to the surrounding area. Include any landmarks which might assist in locating the site.
2. Indicate North: The direction of north in relation to the site.
3. Limits of Clearing and Grading: Areas which are to be cleared and graded.

4. Existing contours: The existing contours of the site.
5. Final Contours: The changes to the existing contours, including final drainage patterns.
6. Existing Vegetation: The existing tree lines, grassed areas, or unique vegetation.
7. Soils: The boundaries of different soil types.
8. Existing Drainage Patterns: The dividing lines and the direction of flow for the different drainage areas. Include the size (in acres) of each drainage area.
9. Critical Erosion Areas: Areas with potential serious erosion problems.
10. Site Development: Show all improvements such as buildings, parking lots, access roads, utility construction, etc.
11. Location of Practices: The locations of Erosion and Sediment Control and storm water management practices used on the site. Use standard symbols and abbreviations.
    a. Explain phase of construction that each measure is needed.
    b. Explain installation procedure for each measure.
    c. Explain purpose of each measure.
    d. Give reference to the applicable detail on the Detail Sheet for each measure.
12. Off-Site Areas: Identify any off site land disturbing activities (e.g., borrow sites, waste areas, etc.). Show location of erosion controls. (Is there sufficient information to assure adequate protection and stabilization?)
13. Maintenance: A schedule of regular inspections and repair of erosion and sediment control structures should be set forth.

C. Title Block - as per section **I**-A.

VI DETAIL SHEET

A. Show standard details for all structures, services, planting, etc. included in construction;

B. Show standard details for all applicable Erosion and Sediment Control measures;

C. Show standard details for applicable Traffic Control and Protection measures;

D. Title Block - as per section **I**-A

• Surveying/Plat Checklist:

A. Research Procedure

____ 1. Search the land records for the proper description of the land to be surveyed;
____ 2. Obtain the description of adjoining land as it pertains to the common boundaries and adjacent properties;
____ 3. Utilize any other available data pertinent to the development, construction & survey;
____ 4. Carefully compare with evidence located and found in the field survey;
____ 5. Clearly note inconsistencies found in the research of common boundaries.

B. Minimum Field Procedures

____ 1. Angular Measurement
   a. Transit type instrument which allows a direct reading to a minimum accuracy of 30 seconds of arc;
   b. Number of angles turned to substantiate the average true angle.

____ 2. Linear Measurement
   a. Distance made with metal tapes or with properly calibrated electronic distance measuring equipment;
   b. All linear measurements reduced to the horizontal plane and other necessary corrections performed.

____ 3. Field Traverse and Boundary Closure
   a. The maximum permissible error of closure shall be one part in 20,000 (1/20,000).
   b. The attendant angular closure shall be that which will sustain the one part in 20,000 (1/20,000) maximum error of closure

_____ 4. Monumentation. As a requisite for completion of the work product, each boundary survey of a tract or parcel of land shall be monumented with objects made of permanent material at all. All GPS points within 1000' of the proposed project shall be located and the project tied in with as many points as required to locate the extents of the development and approved by the City
   a. Corners;
   b. Changes of Direction;
   c. Monument, when feasible, identified by a temporary witness stake (which may be wooden);
   d. Location of each monument shown on the plat or map of the boundary.

C. Office Procedures

____ 1. Computations. The computation of field work data shall be accomplished by using the mathematical routines that produce closures and mathematical results that can be compared with descriptions and data of record. Such computations shall be used to determine the final boundary of the land involved.

____ 2. Plats and maps. The following information shall be shown on all plats or maps, or both, used to depict the results of the boundary survey:
   ____a. The title of the boundary plat identifying the land surveyed and showing the district and county or City in which the land is located and scale of drawing;
   ____b. The name of owner of record and deed book reference where the acquisition was recorded;
   ____c. Names of all adjoining owners of record with deed book references, or subdivision lot designations;
   ____d. Names of highways and roads with route number, and widths of right-of-way, and or distance to the center of the physical pavement and pavement width, name of railroads, streams adjoining or running through the land, and other prominent or well-known objects or areas which are informative as to the location of the boundary survey, including but not limited to a distance to the nearest road intersection, or prominent or well-known object. In areas where available the GPS coordinates must be provided;
   ____e. Bearings of all property lines and meanders to nearest 10 seconds of arc, or metric equivalent;
   ____f. Distances of all property lines and meanders to the nearest one hundredth (.01) of a foot or metric equivalent;
   ____g. Area to the nearest hundredth (.01) of an acre or metric equivalent for rural located surveys;

   ____h. Area to the nearest square foot or thousandth (0.001) of an acre or metric equivalent for urban located surveys;

   ____i. North arrow and source of meridian used for the survey.

____j. On interior surveys, a reference bearing and distance to a property corner of an adjoining owner or other prominent object, including but not limited to intersecting streets or roads.

____k. Tax map designation of parcel number if available.

____l. Description of each monument found and each monument set by the professional.

____m. A statement that the boundary survey shown is based on a current field survey. The application of the land surveyor's seal, signature and date shall constitute compliance with all the current standards of a boundary survey as of the date of the application of signature unless otherwise clearly stated in the title of the plat that the plat is to be construed otherwise.

____n. If the land boundaries shown on the plat are the result of a compilation from deed or plats, or both, or based on a survey by others, that fact will be clearly stated and the title of the plat shall clearly depict that the plat does not represent a current boundary survey.

____o. Name and address of the land surveyor.

____3. Metes and Bounds Description. The professional shall prepare a metes and bounds description in narrative form, if requested by the City, for completion of any newly performed boundary survey. The description shall reflect all metes and bounds, the area of the property described, all pertinent monumentation, names of record owners or other appropriate identification of all adjoining property owners, and any other data or information deemed as warranted to properly describe the property. Customarily, the metes and bounds shall be recited in a clockwise direction around the property. For subdivisions, the professional shall prepare a metes and bounds description in narrative form for only the exterior boundaries of the property.

- **Guidelines for a Traffic Impact Study:**

A. Purpose

A traffic impact study assesses the impact of a proposed development, zoning change, or special use approval on the transportation system. Its purposes are (1) to ensure that proposed developments or zoning changes do not adversely affect the transportation network, (2) to identify any traffic problems associated with access from the site to the existing transportation network, (3) to delineate solutions to potential problems, and (4) to present improvements to be incorporated into the proposed development.

The traffic Impact study guidelines contained herein are subject to modification by the City as necessary, and as per modifications made by VDOT. These guidelines have been developed in order to provide for the consistent preparation of traffic impact studies. The guidelines will greatly enhance the efficiency of staff review and, at the same time, will provide the applicant with “accepted” technical procedures and methodologies. The City will review each development application on a case-by-case basis and may make recommendations that differ from the guidelines.

B. Responsibilities for Traffic Impact Studies

The primary responsibility for assessing the traffic impacts associated with a proposed development rests with the applicant, with the City and when applicable or required by the City, the Virginia Department of Transportation serving in a review capacity. This is consistent with the approach followed for other civil

engineering aspects of zoning and subdivision applications. The City should specify the extent of the study area, and any specific issues that should be addressed (i.e., safety, accidents, truck traffic). The study may be waived after written request by the owner, following review and recommendation by City staff and final approval by the City.

If a traffic impact study is required, the applicant will be responsible for submitting a formal traffic impact report. The applicant will also be responsible for all data collection efforts required in preparing a traffic impact study, including current peak period turning movement counts. Current peak period turning movement counts is defined as those counts that have been collected within one year of the zoning, subdivision, or site development application. The City, at its discretion, may request the applicant to adjust the peak hour turning movement counts in order to account for seasonal variations in traffic or other localized factors. In addition, the applicant will be responsible for ensuring that any submitted site plans meet the minimum state and local standards for geometric design. The study should be conducted only by an individual or firm that could be qualified as an expert in traffic engineering.

Upon submission of a draft traffic impact analysis report, the City will review the study data sources, methods, and findings and provide comments. The applicant will then have the opportunity to incorporate necessary revisions prior to submitting a final report. Accompanying the applicant's submission will be the written comments of the City staff. This information will then be used to reach a decision regarding the zoning, subdivision, or site development.

C. Determining the Need for a Traffic Impact Study

The City shall have the discretion to determine when a traffic impact study is needed. The need for a traffic impact study should be evaluated based on conditions surrounding the individual location being considered for zoning, subdivision, or site development. The site specific conditions that should be considered include:

1. The potential impact upon the local and regional road networks.
2. The requirements of the Special Corridor Overlay District.
3. The Bedford 2020 Transportation Plan (August 2002), the Independence Boulevard Corridor Study (May 2006), Chapter 527 of the 2006 Acts of Virginia General Assembly § 15.2-2222.1 to the Code of Virginia, and other applicable studies.
4. The minimum site distances at intersections shown on the plans.
5. The capacity and level of service of the existing roadways to be entered.
6. Roadway geometrics.
7. The type and size of the proposed location.
8. Traffic operations of one or more intersections and a signalization study indicating warrant or lack thereof if requested by the City.
9. Issues of safety and/or traffic operation within the public Right-of-Way.

The City may consider requesting that a group of developers jointly sponsor a traffic impact study on a section of road network where multiple independent developments are planned.

D. Traffic Impact Study Contents and Specifications

The contents should be those as approved by VDOT "Guidelines for Traffic Impact Study – Final Report," prepared by Simpson and Curtin, April 1979, and "Guidelines for Traffic Impact Studies in James City County", The Bedford 2020 Transportation Plan (August 2002), the Independence Boulevard Corridor Study (May 2006),

Chapter 527 of the 2006 Acts of Virginia General Assembly § 15.2-2222.1 to the Code of Virginia, other applicable studies, and as follows:

1. Format – A traffic impact study prepared for a specific location and use (i.e. zoning, subdivision, or site development) should follow the chapter format detailed in section D3. Wherever additions or modifications are appropriate for a specific location, they should be made.

2. Capacity and Level of Service Analysis

   a. All capacity analysis shall be conducted utilizing the procedures in the current Highway capacity Manual (Special Report 209). The software used shall be identified and may be one or more of the following; Synchro, HCS (v.2000/+), aaSIDRA, CORSIM, Transportation Research Board approved, CARCALC 85, or other software if approved by VDOT and/or accepted by the City.

      For capacity analysis and level of service determinations, the most recent Federal Highway Administration software package should be used for the different types of analysis required (i.e., signalized intersections, freeways, ramps). Regardless of which software package is used, the results should be reviewed for reasonableness. Other software, if approved by the City in advance, may be used.

      Firms may use any number of software packages available for capacity analysis. They should provide the input data as well as the results of the capacity analysis so that the City may check the results with its own analysis. Where a great number of intersections or road sections are analyzed, a sample of those should be checked by performing an independent analysis and comparing results. Where differences occur, the firm should be required to explain the differences, to the satisfaction of the City, and all intersections and road sections should be reviewed closely.

   b. Level of Service – Level of Service C will be the design objective, and under no circumstances will less than Level of Service D for all approaches of an intersection be accepted for on-site and off-site traffic. This criterion, however, may be modified by the City on a case-by-case basis, depending on traffic conditions in the proposed site vicinity.

   c. Use of the Results of Level of Service Studies

      i. The primary function of a level of service study is the determination of the geometrics required to provide a desired level of service in a design year.
      ii. The number of lanes required on either a through road or at an intersection can be determined, and the need for auxiliary lanes, as well as their length, can be established.
      iii. The need for signalization can be determined from the projected traffic volumes and the signal warrants in the Manual on Uniform Traffic Control Devices for Street and Highways (MUTCD).
      iv. The level of service study can indicate where on-street parking will have to be eliminated or restricted in order to achieve a desired level of service.
      v. When a development in a given area is projected to be phased over a long period of time, stage construction should be considered and a level of service study used to determine when the various stages must be completed.

3. Narrative – A brief narrative for each chapter of the traffic impact study follows.

   a. Chapter 1 – Introduction

      i. Site and Study Area Boundaries – Include a brief description of and a map displaying the size of the land parcel, the general terrain features, and the location within the jurisdiction and region. In addition, identify the roadways that afford access to the site and are included in the study area. The exact limits of the study area should be based on engineering judgment and an understanding of the existing traffic conditions in the site vicinity. In all instances, however, the study area limits will be discussed with the applicant and his traffic engineer, and will be determined by the City staff. The definition of the study area should result, subsequent to the initial staff review of a developer's rezoning application, subdivision preliminary plat application, or preliminary site plan, at which time a traffic impact study will be required. If the project is being completed in phases, describe the total project and the phases. The study should address the appropriate phase.

      ii. Existing and Proposed Site Uses – Identify the existing and proposed uses of the site in terms of the various zoning categories. In addition, identify the number and the type of residential units, and type and amount of commercial, industrial, or office uses in accordance with ITE trip generation categories.

      iii. Existing and Proposed Nearby Uses – Include a complete description of the existing land uses in the vicinity of the site, as well as their current zoning. Also state the proposed developments of adjacent land using the City's comprehensive land use plan. This is especially important where large tracts of underdeveloped land are in the vicinity of the site and are within a prescribed study area.

      iv. Existing and Proposed Roadways and Intersections – Describe and provide diagrams of the existing roadways and intersections (including road geometrics, land usage, traffic control, and intersection condition diagrams) within the study area, as well as improvements contemplated by the City or state. This includes the nature of the improvement project, its extent, the implementation schedule, and the agency or funding source responsible.

   b. Chapter 2 – Analysis of Existing Conditions

      i. Daily and Peak Hour(s) Traffic Volumes – Present diagrams depicting daily and peak hour traffic volumes for roadways within the study area. Present turning movement and mainline volumes for the three peak hour conditions (a.m., p.m., and site-generated). Present only mainline volumes to reflect daily traffic volumes. Also present the source and/or the method of computation for all traffic volumes.

      ii. Capacity Analysis at Critical Points – Utilizing techniques as described in the current Highway Capacity Manual, assess the relative balance between roadway volumes and capacity. Analyze existing conditions (roadway geometrics and traffic signal control) for all peak hours.

      iii. Level of Service at Critical Points – Based on the results obtained in the previous section, determine and present levels of service (A through F). Include a description of typical operating conditions at each level of service.

   c. Chapter 3 – Analysis of Future Conditions Without Development

Describe the anticipated traffic volumes in future and the ability of the roadway network to accommodate this traffic without the proposed zoning, subdivision, or development. The future year(s) for which projections are made will be specified by the City staff and will depend on the timing of the proposed development.

i. Future Daily and Peak Hour(s) Traffic Volumes – Indicate clearly the method and assumptions used to forecast future traffic volumes, so that the City staff can replicate these calculations.
ii. Capacity Analysis at Critical Locations – Describe the ability of the existing roadway system to accommodate future traffic (without development) for all peak hours, using the current Highway Capacity Manual. If roadway improvements or modifications are committed for implementation, present the capacity analysis for these conditions.
iii. Levels of Service at Critical Points – Based on the results obtained in the previous section, determine the level of service (A through F).

d. Chapter 4 – Trip Generation

Present and diagram the amount of traffic generated by the location (rezoning, subdivision, or development) for daily and three peak hour conditions. Trip generation Rates to be used should be those presented in Trip Generation, 4th edition, Institute of Transportation Engineers. Deviation from these rates must be justified and documented to the satisfaction of the City.

e. Chapter 5 – Trip Distribution

Present and diagram the direction of approach for site-generated traffic for the appropriate time periods. The basic method and assumptions used must be clearly stated so that the City can replicate these results.

f. Chapter 6 Traffic Assignment

Describe the utilization of study area roadways by site-generated traffic. Combine the proposed traffic volumes with the anticipated traffic volumes from Chapter 3 to describe and diagram mainline and turning movement volumes for future conditions with the proposed rezoning, subdivision, or site development. Clearly state the basic method and assumptions used.

g. Chapter 7 - Analysis of Future Conditions with Zoning, Subdivision, or Development

i. Future Daily Peak Hour(s) Traffic Volumes – Present and diagram mainline and turning movement volumes for the highway network in the study area, as well as driveways and internal circulation roadways for all time periods.

ii. Capacity Analysis at Critical Points – Perform a capacity analysis for all peak hours for future conditions with the site developed as proposed using the current Highway Capacity Manual.
iii. Levels of Service at Critical Points – As a result of the capacity analysis, compute and describe the level of service on the study area roadway system.

h. Chapter 8 – Recommended Improvement

In the event the analysis indicates that unsatisfactory levels of service will occur on the study area roadways, describe the improvements proposed to remedy deficiencies. The proposals would identify committed projects by the City and the State that were described in Chapter 1 and reflected in the analysis contained in Chapters 2 and 3, and/or any improvements required of the applicant.

i. Proposed Recommended Improvements – Clearly describe and diagram the location, nature, and extent of the proposed improvements to ensure sufficient roadway capacity. Accompanying this list of improvements should be preliminary cost estimates, source of funding, timing, and likelihood of implementation.
ii. Capacity Analysis at Critical Points – Describe the anticipated results of making these improvements.
iii. Levels of Service at Critical Points – As a result of the revised capacity analysis presented in the previous section, present the levels of service for the roadway system with improvements.

i. Chapter 9 – Conclusion

The last chapter of the report should be a clear concise description of the study findings. This concluding chapter should serve as an executive summary.

SAMPLE - IRREVOCABLE LETTER OF CREDIT Or BOND INFORMATION AND STATEMENT OF DEVELOPER/OWNER AGREEMENT ____

This document is to be used for needed content only for the City of Bedford, Virginia! It must be accompanied by a statement from the developer/owner agreeing that they are responsible to pay for the improvements contained here-in.

"Issuer Letterhead"

Issued By: _____
Address: _____
Phone #: _____ext._____ **Fax #:** _____

Beneficiary:

City of Bedford
215 E. Main Street
Bedford, VA 24523

Date: _____

Each draft drawn relative hereto must be marked:
Drawn under _____
Surety Number _____
And be accompanied by this original Surety

***Applicant*:**
_____
_____
_____

***Amount*:** _____
***Expiration Date*:** _____
***Project Title/Name*:** _____

We hereby open our irrevocable Surety No. _____ in your favor for the account of _____ _____ for a sum not exceeding U.S. $ _____ available by your sight drafts on us and accompanied by the following documents:

A certified statement signed by an official of Bedford City stating that _____ has not satisfactorily performed his obligation to the City of Bedford *relating to all required improvements shown on plans, drawings & specifications for this project, and including but not limited to, paving & base, pavement painting/striping, public signage, public water, sewer and storm drainage construction, site and street landscaping, erosion & sediment control, land disturbing and stabilization, street and site lighting, underground electric, sidewalks, curb & gutter, required utility relocations, required legal and engineering cost for easements and right of way plats for dedication to the City, through their recordation, associated utility service fees, all associated project fees including traffic studies, fees and application by the contractor/developer to DEQ, DCR, etc., work, all materials, including any contracts and agreements with the City of Bedford, and that the proceeds of the drawing will be used in providing funds for completion of the project.*

*** This Surety shall be valid for a period of _____ from the date hereof and shall automatically renew from year to year thereafter unless the guarantor shall give ninety days prior written notice to the City of Bedford Planning Department of his intent to terminate same at the expiration of said ninety day period and the City's approval of such termination.

The City of Bedford may draw up to the full amount when their draft is accompanied by the following document: A certified statement signed by an official of Bedford City stating the _____ has not satisfactorily performed his obligation to the City of Bedford relating to this project or required work, and the _____ has not provided an acceptable substitute Surety or deposit in escrow, and that the drawing will be held for the sole purpose of providing for completion of the project in accordance with the Bedford City standards, regulations and code.

We hereby engage with you that all drafts drawn under and in compliance with the terms of this credit shall be duly honored upon presentation and delivery at this office within the validity of the credit.

Sincerely,

_____ *Date*: _____
Authorized Signature

Please Print Name & Title